

THE UNITED SHATES OF AMERICA

TO ALL TO WHOM THESE: PRESENTS: SHALL COME:

Seminis Hegetable Seeds, Inc.

THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY MEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC ESTABLISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE SUCHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR INFORMATION OR STOCKING IT FOR ANY OF THE SURPOSE. OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

LETTUCE

'Sniper'

In Certimonn Macrest, I have hereunto set my hand and caused the seal of the Hant Anciety Protection Office to be affixed at the City of Washington, D.C. this nineteenth day of April, in the year two thousand and five.

Attast:

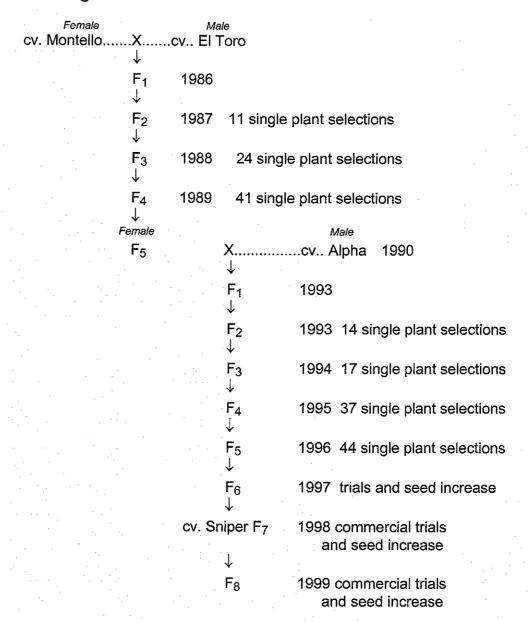
Qe mzec

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Sariculture

Exhibit 16A. Origin and Breeding History of Lettuce cv. Sniper (SVR 3879)

Pedigree of cv. SNIPER



Cv. SNIPER originated in 1986 with the cross cv. Montello by cv. El Toro. An F_5 selection from this cross was crossed in 1990 to cv. Alpha. Single plant selections were made in subsequent years in the areas of intended commercialization. By F_6 a group of 11 families was judged uniform and bulked for trialing and seed increase. An F_7 mass was trialed extensively during 1998 and increase of F_8 seed was produced in the San Joaquin Valley of California the same year.

Exhibit 16A (cont.) Lettuce cv. Sniper (SVR 3879)

The initial breeding work (up to the final F₃) was carried out at the former Royal Sluis Company's Research Station at San Juan Bautista, California by Mr. Dean Gregg and Mr. Keith Trammell. When Royal Sluis Company was purchased by Petoseed Company in 1994, further breeding and trialing work was carried out by Dr. William Waycott at the Petoseed Company's Research Station at Arroyo Grande, California. Petoseed Company was purchased by Seminis Vegetables Seeds, Inc. in 1995, and the work continued by the same staff at the Arroyo Grande location until the present. Replicated field trials were conducted in production areas throughout the coastal areas of Central California.

The breeding method employed was pedigree selection, using both single plant and mass selection practices. The selection criterion for cv. SNIPER was to breed a cultivar with increased uniformity, and improved heading appearance, when compared to the most similar variety.

In trials of cv. SNIPER during the last seven years covering generations F_6 to F_{13} , we have seen neither genetic variants nor off-types in more than 18,000 plants, indicating that this variety is genetically uniform and stable.

Exhibit 16B. Novelty Statement of Lettuce cv. Sniper (SVR 3879)

cv. SNIPER is described as a vigorous crisphead lettuce cultivar adapted to the coastal growing areas of California. Its optimum sowing period is from February through mid-August in the production areas of Coastal California. Cv. SNIPER has downy mildew resistance to California pathotypes I, II, III, and IV, as well as the <u>cor</u> gene conferring resistance to corky root rot, strain CA I. Cv. SNIPER was selected for improved uniformity and performance compared to the current commercial cultivars grown during this production period in the coastal areas of California.

Phenotypically, cv. SNIPER is distinct from its most similar commercial cultivar, cv. Sharp Shooter (Table 1). Cv. SNIPER is equal in head and plant size to cv. Sharp Shooter (head diameter 20.1cm vs. 20.0cm; plant diameter 46.4cm vs. 46.7cm), but more uniform in head formation and appearance. In replicated field trials, cv. SNIPER consistently exhibited more plants with round, firm, and heavy heads (1002g vs. 926.25g), while cv. Sharp Shooter exhibited less uniformity of heading, with several plants having mis-shapened heads, and protruding lower ribs (petioles).

The data presented here are statistically different at the 95% confidence level, exhibiting a range of means for head weight from 1000.6 to 1003.4 for cv. SNIPER and from 924.7 to 927.8 for cv. Sharp Shooter, using the 0.95 probability of generating confidence intervals (CI) that contains the means.

Table 1. Evaluation of Sniper (SVR 3879) and the most similar cultivar, Sharp Shooter, for several important characters.

				Downy	Corky					
Trial No	Cultivar	Rep No.	Color	Mildew Color ^a Resist. ^b	Roof Rot Plant Resist. ^c Diam.	t Plant Diam. ^d	Head Diam. ^e	Head Weight ^f	No. of Days to 15 cm ⁹	Petiole Shape ^h
Trial 1: Evaluated: 27 Jul 98	Sniper:	Rep. 1 Rep. 2	146A 146A	, , V , , V	Resist. Resist.	47.0±0.9 46.3±0.7	20.3±0.4 20.2±0.5	1010±6.6 996±6.1	61	Flat Flat
Salinas Valley		Average	3: 146A	Average: 146A II, III,IV	Resist.	46.7±0.8	20.3±0.5	1003±6.4	62	Flat
	Sharp Shooter: Rep. 1 Rep. 2	Rep. 1 Rep. 2	146A 146A	I,IIa.III,IV Resist. I,IIa.III,IV Resist.	Resist. Resist.	46.8±1.2 47.3±1.0	19.5±0.6 20.3±1.1	922±7.1 930±6.2	64 62	Protruding Protruding
		Average	3: 146A	Average: 146A I,II.III,IV Resist.	Resist.	47.1±1.1	19.9±0.9	926±6.7	63	Protruding
Trial 2: Evaluated: 11 Aug 98	Sniper:	Rep. 1 Rep. 2	146A 146A	, , \ , , \	Resist. Resist.	45.8±0.9 46.5±0.8	20.3±0.7 19.6±0.5	992±6.1 1010±6.2	63	Flat Flat
Salinas Valley		Average	3: 146A	Average: 146A II, III,IV	Resist.	46.2±0.9	20.0±0.6	1001±6.2	62	Flat
	Sharp Shooter:	Rep. 1 Rep. 2	146A 146A	I,IIa.III,IV Resist. I,IIa.III,IV Resist.	Resist. Resist.	46.7±1.2 46.1±1.3	20.1±1.2 20.2±0.7	927±6.7 926±7.0	62 63	Protruding Protruding
		Average	:: 146A	Average: 146A I,II.III,IV	Resist.	46.4±1.3	20.2±1.0	927±6.9	63	Protruding

Range of variation among means of statistically significant differences at the 95% level using the confidence interval [CI = mean ± (SDXSE)]:

cv. Shiper cv. Sharp Shooter

1000.6 to 1003.4 924.7 to 927.8

^a Color evaluation was done using the Royal Horticultural Society color chart, U.K.

^b Downy mildew survey reported as resistance to California Pathotypes I through V, using two replications each having 15 seedlings, grown in laboratory screens.

Corky root rot survey of using five replications, each having 25 roots from plants grown in field trials in Monterey and Santa Maria Counties, CA, evaluated between June and August, 1997 and 1998.

 $^{^{3}}$ Mean plant diameter using two sowing dates of 20 plants per replication in cm \pm standard deviation.

Mean head weight using two sowing dates of 20 plants per replication in grams \pm standard deviation. * Mean head diameter using two sowing dates of 20 plants per replication in cm \pm standard deviation.

⁹ Mean number of days until stem reaches 15 cm using two replications of 20 plants each.

Verbal description of the leaf petiole using two replications of 20 plants each. "Flat" describes a petiole with a depth (front to back) of 0 to 15 mm measured near the point of leaf attachment to the stem. "Protruding" describes a petiole with a depth of 15 to 30 mm.

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE SCIENCE DIVISION

OBJECTIVE DESCRIPTION OF VARIETY

	LETT	UCE <u>Lactuca sativa</u>		•
NAME OF APPLICANT (S)	· · · · · · · · · · · · · · · · · · ·		FOR OFF	ICIAL USE ONLY
Seminis Vegetable Seed			PYNO NUMBER	1007/
ADDRESS (Street and No. or R.F.D. N	o., Clty, State, and ZIP Code;	•	20000	100/4
37437 State Hwy 16 Woodland CA 95695			VARIETY NAME	NIPER 3/31
			EXPERIMENTAL D	3879
Place numbers in the baxes for the cha- spaced plants. Royal Horticultural Soc	racters which best describe the	s variety. Measured data shoul	be the mean of an appropriat	e number (at least 10) of
The location of the test area is:	acty of any recognized color s	Color System U		
		Color System O	sed:	
1. PLANT TYPE: (See list of sugg	nested check varieties page 4.)			
01=Cutting/Le 02=Butterhead 03=Bibb 04=Cos or Ron	06=Vanguard G 07=Imperial Gr	roup 10=Latin		
2. SEED: COLOR 1=White (Silver Gray	LIGHT DO	RMANCY HI	AT DORMANCY	
2=Black (Gray Brow 3=Brown (Amber)	n) 2= Light Red 2= Light No	1 1 1 2	Susceptible Not Susceptible	
3. COTYLEDON TO FOURTH LEAF	STAGE: NOTE: Provide a c	olor photograph or photocopy or optimal conditions.	of the fourth lest from 20 day	old seedling
SHAPE OF COTYLEDO	ONS: 1#Broad	2=Intermediate 3=Sc	atulate	
SHAPE OF FOURTH L				3
	2 3	. 4	5 6	
				•
a a LENGTH/WIDTH INDEX	COF FOURTH LEAF: L/W:	× 10		
apical margin: Basal margin:	1=Entire. 2=Creanate/Griawed 3=Finely Dentate	4=Moderately Dentate 5=Coarsely Dentate 6=Incised	7=Lobed 8=OTHER (specify)	
Q UNDULATION:	1=Flat	2=Slight	3=Medium	4=Marked
3 GREEN COLOR:	1=Yellow Green 2=Light Green	3=Medium Green 4=Dark Green	5-Blue Green 6-Silver Green	7=Gray Green
ANTHOCYANIN:			0 0.1.01 0.001	
DISTRIBUTION:	1=Absent 2≃Margin Only	3=Spotted 4=Throughout	5-OTHER (specify)	
CONCENTRATION:	1-Light	2-Moderate	3=Intense	
ROLLING:	1=Absent	2-Present		
CUPPING:	1=Uncupped	2=Slight	3=Markedly	

2=Apical Margin

3=Lateral Margins

1=None

REFLEXING:

	E-CEAVES (observe harvest-mat Provide calor photo of harvest-m	ure outer leaves); sature leaves which accurately shows color a	and manufacture and a	
	MARGIN:	start in account of the start o	ing margin characteristics.	, 2
3	INCISION DEPTH: Ideepest penetration of	1=Absent/Shallow (Dark Green Boston) the margin)	2=Moderate (Vanguard)	3=Deep (Great Lakes 659)
3	INDENTATION: (finest divisions of the margi	1=Entire (Dark Green Boston) 2=Shallowly Dentate (Great Lakes 65)	3-Desply Dentate (Great Lakes 659) 4-Crenate (Vanguard)	5-OTHER (specify)
3	UNDULATION OF THE APICAL MARGIN:	E 1=Absent/Slight (Dark Green Boston)	2-Moderate (Vanguard)	3-Strong (Great Lakes 659
4	GREEN COLOR:	1=Very Light Green (Bibb) 2=Light Green (Minetto)	3=Medium Green (Great Lakes) 4=Dark Green (Vanguard)	S*Very Dark Green 6-OTHER
· ;	ANTHOCYANIN (grown at	or below 10 C):		
	DISTRIBUTION:	1=Absent 2=Margin Only (Big Boston)	3=Spotted (Calif, Cream Butter) 4=Throughout (Prize Head)	5-OTHER (specify)
	CONCENTRATION:	1=Light (Iceberg)	2=Moderate (Prize Head)	3=Intense (Ruby)
3	SIZE:	1=Small	2~Medium	3×Large
2	GLOSSINESS:	1=Dull (Vanguard)	2=Moderate (Salinas)	3-Glossy (Great Lakes)
(BLISTERING:	1=Absent/Slight (Salinas)	2=Moderate (Vanguard)	3=Strong (Prize Head)
3	LEAF THICKNESS:	1=Thin	2=Intermediate	3=Thick
2	TRICHOMES:	1≃Absent (smooth)	2=Present (spiny)	
5. PLANT (a		rison variety appropriate for this type.):		
46	SPREAD OF FRAME LEAVES cm This Variety	51 A7 CM SHARPSI	HOOTER repectify comparison variet	
	HEAD DIAMETER (market to	immed with single cap leaf):	1001 UC (specify comparison variety	у)
20	cm This Variety	20 cm SHARPSHI	OOTER (specify comparison variety	ואָע
3	HEAD SHAPE:	1=Flattened 2=Slightly Flattened	3=Spherical 4=Elongate	5=Non-Heading 6=OTHER
3	HEAD SIZE CLASS:	1=Small	2≃Medium	3=Large
24	HEAD COUNT PER CARTON			
002	HEAD WEIGHT: g This Variety	19127, SHARPSHO	OTER (specify comparison variety	0
3			3=Firm 4=Very Firm	
6. BUTT (bot)	tom of market-trimmed head);			_
7	SHAPE:	1=Slightly Concave	2≂Flat	3-Rounded
[Z]	MIDRIB:	1=Flattened (Salinas)	2-Moderately Raised	3=Prominently Raised (Great Lakes 659)
7. CORE (stem	of market-trimmed head):			
32	mm Diameter at base of head			
6.3	Ratio of head diameter/core dia			
55	Core height from base of head to mm. This Variety	80 mm SHARPSHOO		
8. BOLTING	Give First Water Date 19 MA	V967 J: NOTE: First Water Date is the to germinate. This can and off	e date seed first receives adequate mois en does equal the planting date,	(U/e
58	Number of days from First Wate This Variety	or Date to seed stalk emergence (summer co	nditions):	,
3				5=Very Rapid
97	Height of mature seed stalk: cm. This Variety		OTFR (specify comparison variety)	7

BOLTING cont'd, on next page

FORM LS-470-1

	oread of Botter Plant <i>(ot wi</i> n. This Variety		5 HARP SHOOTER (specify comp	artion variety)
80	OLTER LEAVES:	1=Straight	2=Curved	
2	MARGIN:	1=Entire	2=Dentate	
3_	COLOR:	7-Light Green	2-Medium Green	3=Dark Green
2	LTER HABIT: TERMINAL INFLORESCENCE:	1-Absent	2=Present	
2	LATERAL SHOOTS: (above head)	1=Absent	2=Present	
	BASAL SIDE SHOOTS:	1=Absent	2=Present	
	liness of harvest-mature he distanthis section for at less			
SEASON	Applic.1/ #of days		CHECK VARI	1ETV 2/
Spring	116	120	SHARPSHOOTER	The I I god
Summer	68	70	SHARP SHOOTER	
Fall	80	83	SHARP SHOOTER	
Winter				
Give planting datel	s), and location(s);			
Spring	CENTRAL C	ALIFORNIA	COAST I JANUARY	TO 15 AUGUST
Summer	CENTRAL (CALL FORNIA	COAST	
Fall	CENTRAL (CALIFORNIA	COAST	V
Winter	date to harvest,	2/Fill in check use		
10. ADAPTATION:		E. A. H. Check Vall	ety name on the appropriate line,	
PRIM	ARY REGIONS OF ADAI	PTION (tested and prov	ren adapted): (0=Not tested 1=No	t Adapted . 2≃Adapted)
South	west (Calif., Ariz, desert)	West Coas	st Northeast	
O North	central	Southeast	OTHER	
SEASO	ON: ipring (area <u>CENTRAL</u>	. CALIF. COAST	2 Fall larea CENTRAL C	ALIF. COAST
a s	ummer (area <u>CENTR</u>	+ CALIF COAST	Winter (area	}
O GREE	NHOUSE: 0	Not tested	1=Not Adapted	2*Adapted
SOIL	TYPE: 1-	Mineral	2=Organic	3=Both
OBA 1 C 470 1				

RM LS-4 (9-86)

20000007411

11. DISEASES AND STRESS REACTIONS (0-Not tested; 1-Susceptible; 2	=Intermediate; 3=Resistant; 4=Highly resistant; 5=Tolerant);
VIRUS	FUNGAL/BACTERIAL ,Å
Big Vein	D Carky Root Rat (Pythium Root Rot)
Lattuca Mosaic	3 Downy Milder (Roces I, II, III)
O Cucumber Massic	Powdery Mildew
D Broad Been Wilt	Sclerotinia Rot
Turnip Mossic	Bacterial Soft Rot (Pseudomonas spp. & others)
Beet Western Yellows	Botrytis (Gray Mold)
Lett. Infectious Yellows	BOTHER Rhizomonas Suberifici
Other Virus	
INSECTS	PHYSIOLOGICAL/STRESS
Cabbage Loopers	3 Tipbum O Salt
Root Aphids	Heat O Brown Rib (Rib Discoloration, Rib Stight)
O Green Peach Aphid	O Drought OTHER
Other Insect	
	Z Cold
POST HARVE	<u>est</u>
Plak Rib	Internal Rib Necrosis (Blackheart, Gray Rib, Gray Streak)
Russet Spotting	Brown Stain
Rusty Brown Discolaration	
12. BIOCHEMICAL OR ELECTROPHORETIC MARKERS:	
13. COMMENTS:	

SUGGESTED CHECK VARIETIES

TYPE

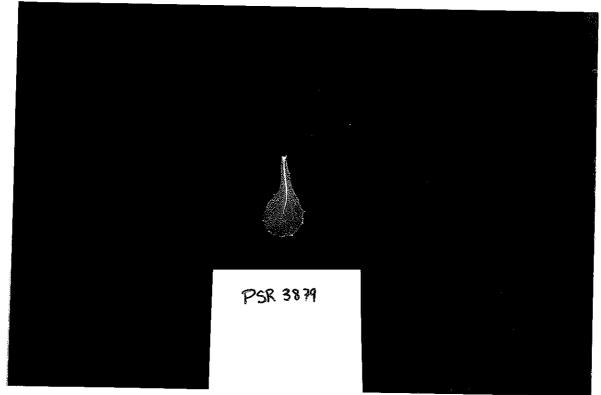
- CUTTING/LEAF BUTTERHEAD

- BUTTERHEAD BIBB COS, OR ROMAINE GREAT LAKES GROUP VANGUARD GROUP IMPERIAL GROUP EASTERN GROUP STEM LATIN

- 8) 9) 10)

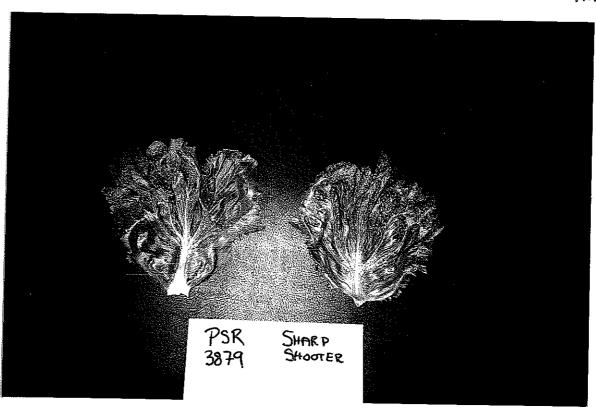
-CHECK VARIETY

SALAO BOWL
DARK GREEN BOSTON
BIBB
PARRIS ISLANO
GREAT LAKES 659-700
VANGUARO
VIVA
ITHACA
CELTUCE
MATCHLESS

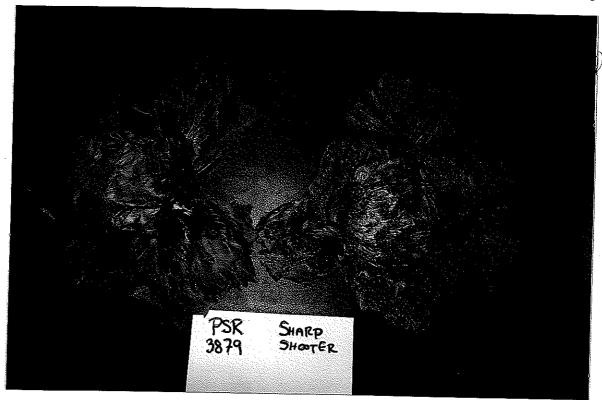


Fourth Leaf from 20-Day old Seedlings, PSR 3879

'SNIPER' MAH 3/31/2005



Harvest-Mature Leaf, PSR 3879(L), Sharp Shooter (R)



Harvest-Mature Plants, PSR 3879 (L), Sharp Shooter (R)
'Swiper'
matt 3/31/05

REPRODUCE LOCALLY: Include form number and edition date on	all reproductions.	FORM APPROVED - OMB No. 0581-005
U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE EXHIBIT E STATEMENT OF THE BASIS OF OWNERSHIP	Application is required in order to det certificate is to be issued (7 U.S.C. 2 confidential until the certificate is issued	421). The information is held
NAME OF APPLICANT(S) Seminis Vegetable Seeds, Inc.	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER PSR 3879	3. VARIETY NAME Sniper
4. ADDRESS (Street and No., or R.F.D. No., City, State, and 2)P, and Country)	5. TELEPHONE (include area code)	6. FAX (Include area code)
2700 Camino del Sol Oxnard, CA 93030-7967	805 647 1572	805 918 2545
	7. PVPO NUMBER	
	1 20000000	4
8. Does the applicant own all rights to the variety? Mark an "X" in 9. Is the applicant (individual or company) a U.S. National or a U.S.		Acceptance (Control of Control of
TES TO USE OF STREET OWNERS	If no, please answer one of the fo	llowing:
a. If the original rights to variety were owned by individual(s),	is (are) the original owner(s) a U.S. Nation	aal(s)?
YES	NO If no, give name of country	
b. If the original rights to variety were owned by a company(is	es), is (are) the original owner(s) a U.S. ba	sed company?
YES	NO If no, give name of country	
11. Additional explanation on ownership (If needed, use the revers	se for extra space):	
The variety named in this application was developed named below. By agreement between employee and discovery, or development made by an employee are discovery, or development are retained by the employee	by the Seminis Vegetable Seeds, d Seminis Vegetable Seeds, Inc., e assigned to the Company. No ri	all rights to any invention.
Employee (Breeder): Bill Waycott	Site Location: Arroyo Grande, CA	
PLEASE NOTE:		
Plant variety protection can only be afforded to the owners (not lice	ensees) who meet the following criteria:	i .
If the rights to the variety are owned by the original breeder, that national of a country which affords similar protection to nationals	t person must be a U.S. national, national sof the U.S. for the same genus and speci	of a UPOV member country, or ies.
If the rights to the variety are owned by the company which emp nationals of a UPOV member country, or owned by nationals of genus and species.	ployed the original breeder(s) the company	y must be LLS based sumed by
3. If the applicant is an owner who is not the original owner, both the	ne original owner and the applicant must m	neet one of the above criteria.
The original breeder/owner may be the individual or company who Act for definitions.		
According to the Paperwork Reduction Act of 1995, an agency may not conduct or spons control number. The valid OMB control number for this information collection is 0581-005 response, including the time for reviewing the instructions, searching existing data source		

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